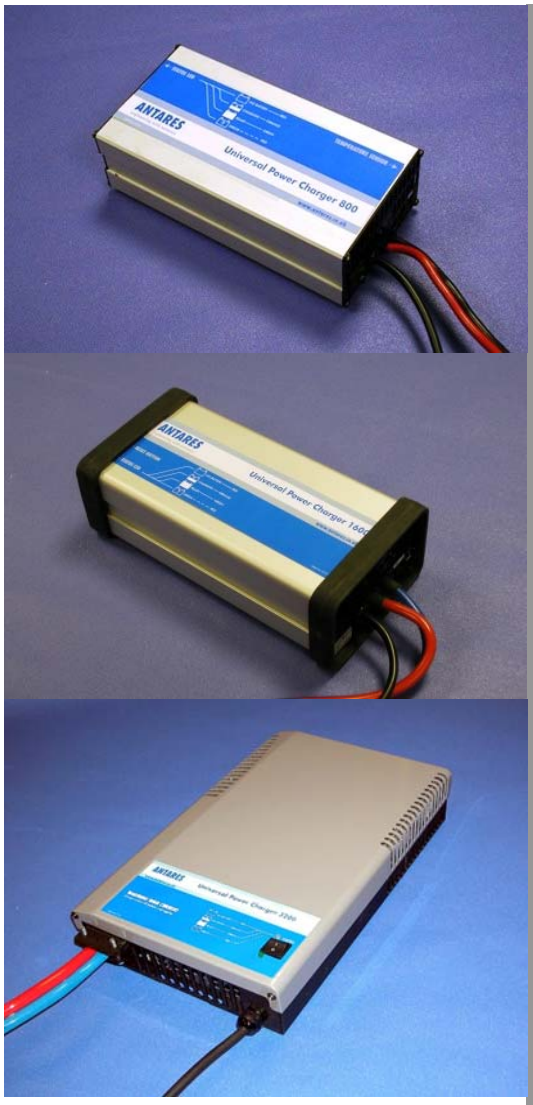
Universal Power Charger

12volt & 24volt VERSIONS FOR SPECIALIST VEHICLES



ANTARES
engineering with answers

Instructions for installation and use

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CE

Type approved E13*3027*00

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FM 37786
ISO 9001:2000

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COMPLIANCE INFORMATION

CE mark:

Conditions of use for which CE mark applies

This equipment is intended to be used solely for professional purposes in commercial and light industrial locations, powered from the low-voltage public mains supply.

Non approved conditions of use

This unit may be suitable for use in other applications, but it can only be supplied as a component in this respect, for which the CE mark displayed on this manual does not apply. If the unit is used in this way, as a component part to build a battery charging or similar apparatus, then this unit is supplied solely on the condition that it is the responsibility of the manufacturer of the charging apparatus to ensure that the apparatus complies with the requirements of the relevant legislation, and apply the CE marking should it be required. In this case, this user manual does not apply, and reference should be made to Antares (Europe) Limited for any information required for compliance with the legislation.

Type approval:

This product is type approved for automotive applications.

UNPACKING

Pack contents: 1 Antares Universal Power Charger
1 Instructions for Installation & Use*

*with multiple shipments this manual may be shipped separately, further copies can be obtained from Antares (Europe) Limited or downloaded from our support website (registration required for access):
http://www.antares.co.uk/technical/index.htm

APPLICATION

The Power Charger is suitable for use under shelter only. It must not be exposed to rain. It is suitable for a wide range of applications on vehicles or in fixed locations, subject to the conditions of use stated above under CE marking & type approval. It may be used as a stand alone high performance DC power supply (specify on order), or as a fully automatic multistage charger when connected to a battery. The charging characteristics of the standard model are optimised for flooded and retained electrolyte lead acid batteries. Other charging regimes are available & may be customised for specific applications.

Please ensure that operation is confined to within the limits contained in the product specification given at the end of this manual.

Suitable Battery Types:

The power charger is suitable for charging the following types of battery:

12 VOLT MODELS:

Flooded and retained electrolyte lead acid batteries of 12 volt rating, being made up from 6 identical cells connected in a series configuration.

24 VOLT MODELS:

Flooded and retained electrolyte lead acid batteries of 24 volt rating, being made up from 12 identical cells connected in a series configuration.

36 VOLT, 48VOLT, 72VOLT & 96VOLT MODELS

Flooded and retained electrolyte lead acid batteries of the same voltage rating, being made up from identical 2 volt cells connected in a series configuration, or banks of 6 identical cells (ie identical 12 volt packs) connected in a series configuration.

No attempt should be made to charge non-rechargeable batteries with this unit, as a hazard could result.

IMPORTANT SAFETY INFORMATION

1. Please read and observe the installation instructions, which contain further safety information.

2. WARNING: EXPLOSIVE GASSES MAY BE GENERATED BY A BATTERY ON CHARGE. TO PREVENT IGNITION, ALLOW TIME FOR GASSES TO DISPERSE BEFORE ATTEMPTING TO CONNECT OR DISCONNECT THIS UNIT TO OR FROM THE BATTERY.

3. Statutory Notice: The wires in the mains input lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live
Green/Yellow: Earth

If the colours of the wires in the mains lead of this equipment do not correspond with the markings in your plug, proceed as follows:

The Blue wire must be connected to the terminal marked N or coloured Black.
The Brown wire must be connected to the terminal marked L or coloured Red.
The Green/Yellow wire must be connected to the terminal marked E or coloured Green.

THIS EQUIPMENT MUST BE EARTHED

4. Low Voltage Circuits

This equipment must be installed in such a way that high currents present in any battery circuits or other output connections are prevented from flowing through the equipment mains lead. Such currents could damage the integrity of the protective earth connection.

The incoming mains earth connects only to the Power Charger enclosure. Both the earth and enclosure are isolated from all Power Charger output circuits, which helps the above requirement to be achieved.

The low output voltage from the 12 & 24 volt units does not present an electric shock hazard, but the high current available can be hazardous by virtue of its potential heating effect, particularly if batteries are also connected. The installation wiring must therefore be adequate for the currents involved, with suitable protection from potential fault conditions. Accidental bridging of high energy circuits by users (eg by jewellery) must be prevented.

5. Special notes for 48V, 72V and 96V chargers

THE BATTERY & OUTPUT VOLTAGE ASSOCIATED WITH THESE CHARGERS PRESENTS AN ELECTRIC SHOCK HAZARD.. THE INSTALLER/USER MUST BE FAMILIAR WITH THE REQUIREMENTS OF THE LOW VOLTAGE DIRECTIVE (AS ENACTED IN NATIONAL LAW) BEFORE PROCEEDING WITH INSTALLATION & USE OF THIS EQUIPMENT.

Overview

The Universal Power Charger (UPC) family is one of the most compact battery chargers available. It is supplied in three frame sizes, each covering a range of power outputs: UPC800, UPC1600, UPC3200.

Each series shares the same control system and operates in the same way. They differ in their method of mounting and the size of the power stage.

INSTALLATION

Choose a location where the unit will not be subjected to water spray, dust, or insect ingress.

Locations subjected to high temperature or vibration must be avoided if performance and reliability are not to be impaired.

The power system may be mounted in any orientation, but ensure that there is sufficient clearance around the unit to allow air to enter and leave without undue restriction (25 to 30mm clearance is sufficient). Any possibility of the air vents becoming accidentally obstructed should be prevented.

Ideally, the unit should be located in the same area as the load equipment or battery in order to minimise voltage drop in the DC output leads, and also to ensure that the Power Charger temperature compensating charge system samples air with the same temperature as the batteries. If a similar operating temperature environment cannot be provided, then a remote temperature/voltage sensor is available as an option.

Mounting

800 series

Integral flanges are provided for ease of mounting in situations where the unit needs to be secured to prevent movement, such as in vehicles. Ideally, the mounting should make electrical contact with the vehicle bodywork.

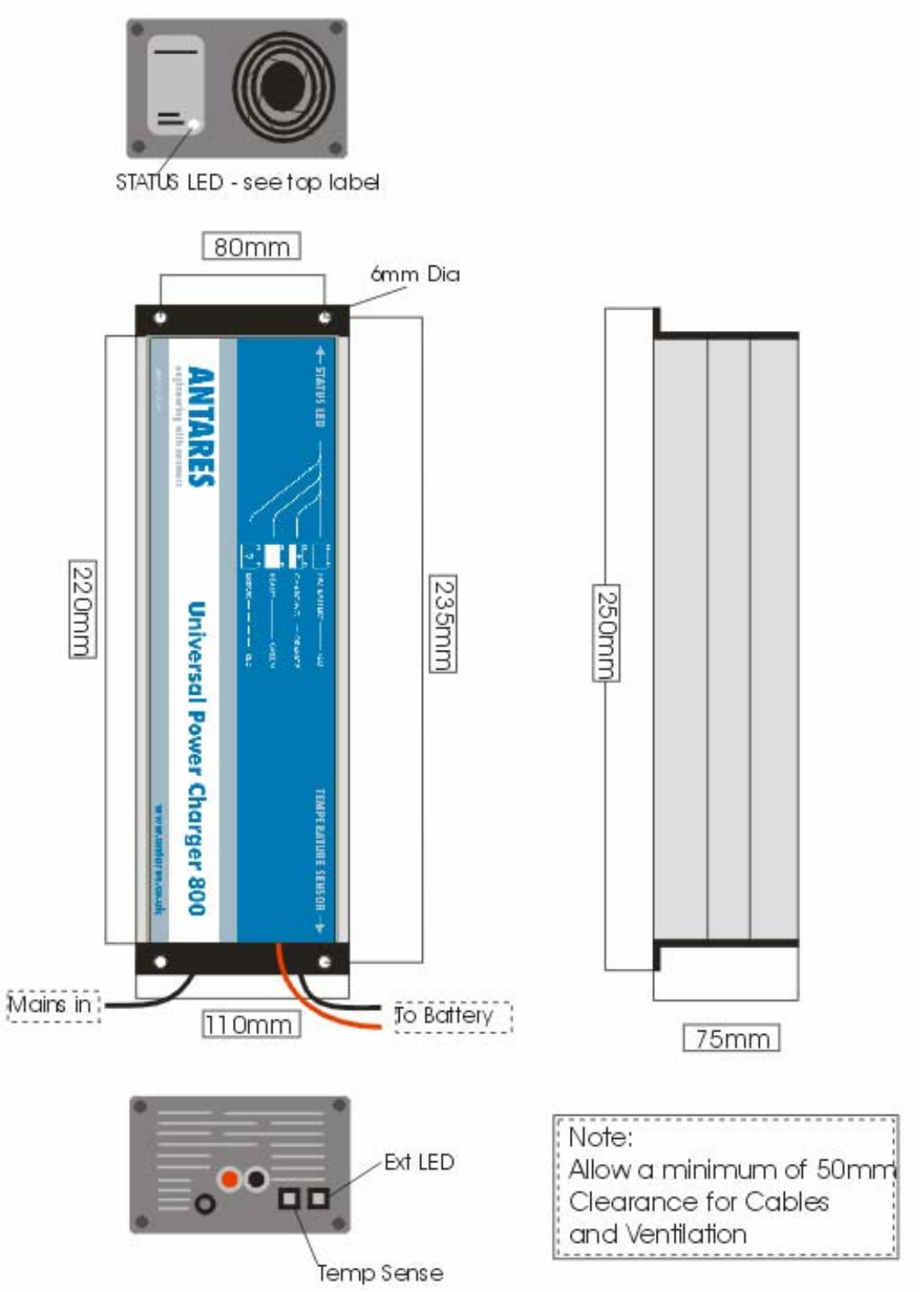
1600 Series

Mounting is by means of either a bridging bracket mounted over the rubber shock absorber ends, or via flanges on the end brackets.

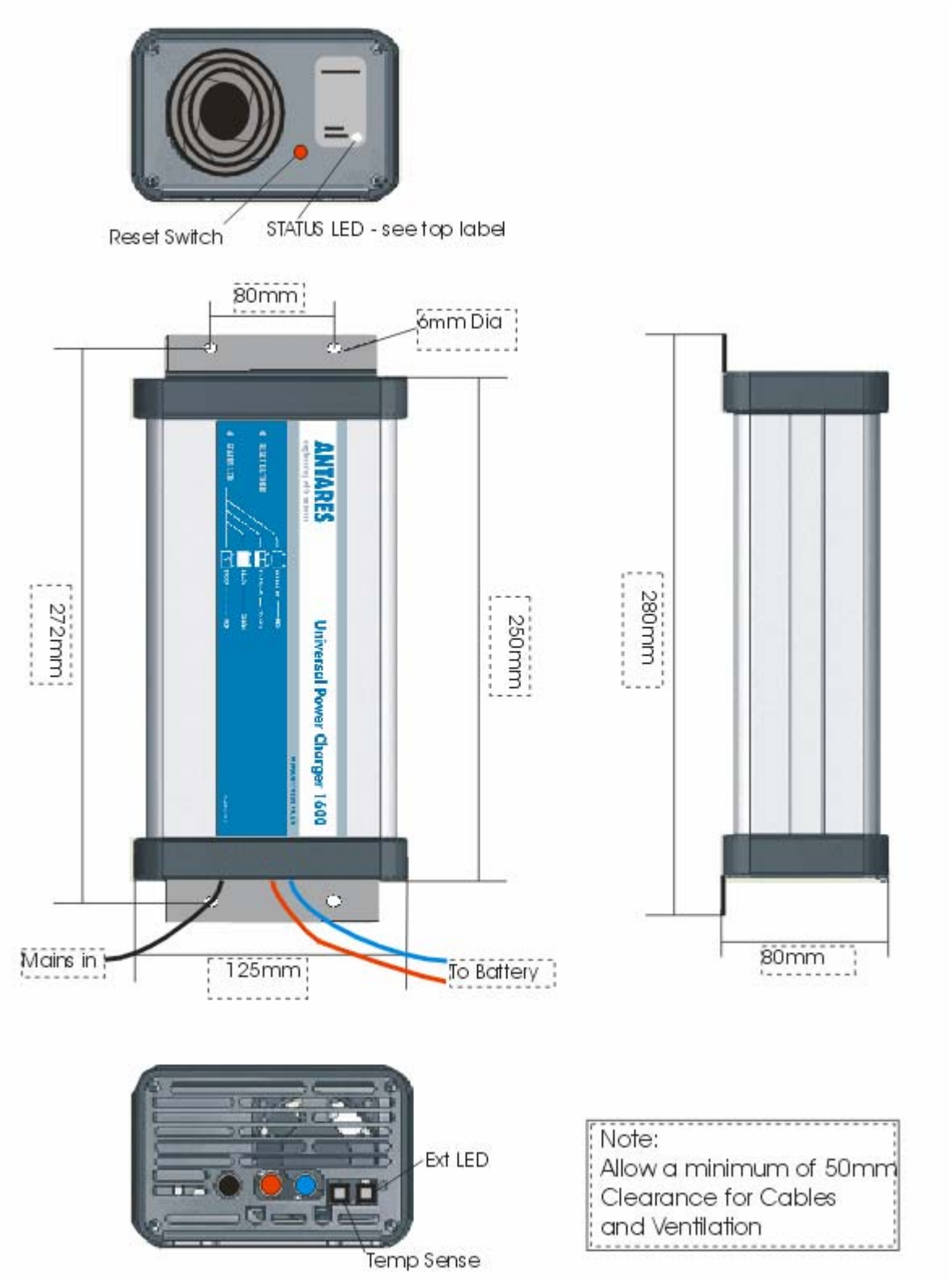
3200 Series

The charger can be used positioned horizontally on a table or a shelf, hung on a wall using the free supplied bracket, or as a built in charger in the vehicle. When it is built into a vehicle it will usually need to be attached using anti-vibration mounts. The charger can be either directly connected to the battery, or with suitably sized DC connectors.

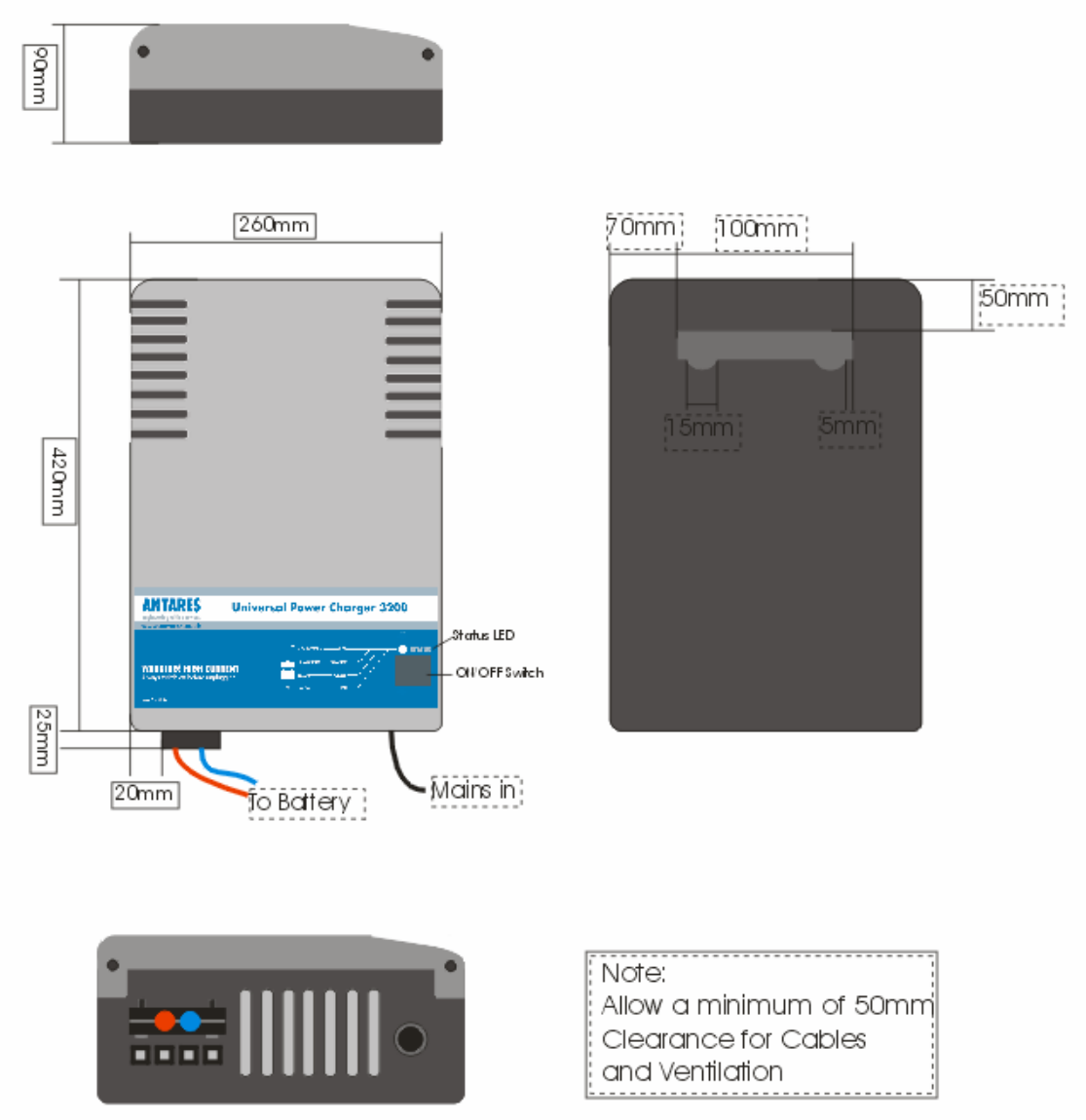
800 Series


STATUS LED - see top label
80mm
6mm Dia
220mm
235mm
250mm
ANTARES
Universal Power Charger 800
Mains in
110mm
To Battery
75mm
Ext LED
Temp Sense
Note:
Allow a minimum of 50mm
Clearance for Cables
and Ventilation

1600 Series


Reset Switch
STATUS LED - see top label
80mm
6mm Dia
272mm
250mm
280mm
ANTARES
Universal Power Charger 1600
Mains in
125mm
To Battery
80mm
Ext LED
Temp Sense
Note:
Allow a minimum of 50mm
Clearance for Cables
and Ventilation

3200 Series


90mm
260mm
420mm
25mm
20mm
ANTARES
Universal Power Charger 3200
Status LED
On/OFF Switch
To Battery
Mains in
70mm
100mm
50mm
15mm
5mm
Note:
Allow a minimum of 50mm
Clearance for Cables
and Ventilation

Connections

Mains Connection

This equipment is designed for connection to public low-voltage single phase AC mains supplies. It is built to insulation class 1, and so must be earthed. The input voltage range for each model is given in the product specification at the end of this manual.

The wires in the mains input lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live
Green/Yellow: Earth

The unit is equipped with a mains input fuse, located inside the unit. Rupture of this fuse is indicative of a unit fault; it is not a user serviceable item.

The unit's input current permits mains connection of the UPC800 & UPC1600 models via an appropriate non-reversible mains plug if desired. If a standard UK domestic plug is used, it should be fitted with a 10 amp fuse. The input current of the UPC3200 exceeds the capacity of the UK domestic plug, so a blue BS4343 industrial plug or a hard-wired connection is required.

Local regulations, or regulations applicable to the intended application of this product, may override or impose additional requirements, which must be taken into account. Attention is drawn to the requirement for residual current circuit breakers in some vehicular applications.

Output Connections

WARNING: EXPLOSIVE GASSES MAY BE GENERATED BY A BATTERY ON CHARGE. TO PREVENT IGNITION, ALLOW TIME FOR GASSES TO DISPERSE BEFORE ATTEMPTING TO CONNECT OR DISCONNECT THIS UNIT TO OR FROM THE BATTERY.

The Power Charger is normally supplied with two flying leads for the DC power output. The heavy gauge red lead is the connection to system positive, and the black lead to negative. Positive, negative or isolated chassis circuits may be connected. Be sure to disconnect the input supply before making or removing the connections to the battery.

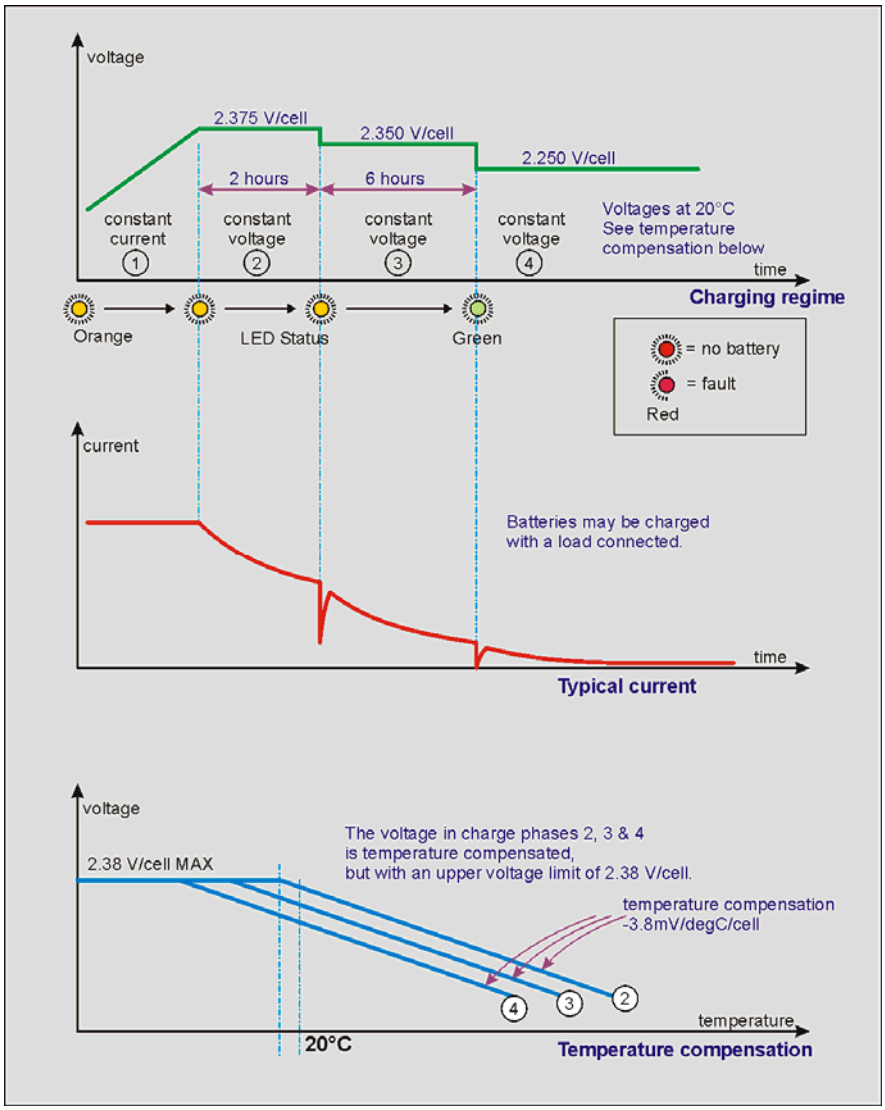
Ideally, in battery charging applications, both the positive and negative leads should be routed directly to the battery terminals. This ensures that the Power Charger system responds only to the battery conditions, without being disturbed by other connected equipment. The unit is suitable for permanent connection to the battery.

If a temporary connection is made to an automobile battery whilst in situ, proceed as follows:

- Ensure that the AC input supply is disconnected.
- Then connect the appropriate output conductor to the battery terminal which does not connect to the vehicle chassis (normally positive on negative earth vehicles), then connect the other output conductor to the battery terminal which connects to the vehicle chassis.
- Connect the AC input supply.
- To stop charging, disconnect the AC input supply, wait for gasses to disperse, then remove the battery connections in reverse order.

The leads may be shortened if required.

If longer leads are required, the leads supplied can be replaced or lengthened, using suitable cable, up to a maximum extended length of around 5 metres. Systems with extended cables will benefit



greatly from the remote sense option, which eliminates the effect of voltage drop in the supply cables. Suitable cable sets & the “plug-in” remote sensor can be supplied by Antares (Europe) Limited if required.

OPERATION

The Power Charger system is fully automatic in operation.

The charger is supplied with a standard control software providing the charging regime shown above. The charger is pre-programmed with other software regimes which are user selectable, but these should be used with caution. Please contact Antares (Europe) Limited for advice.

The charging regime in the standard program is as indicated in the above diagram.

The operation of the LED indicator is as indicated above.

SPECIFICATIONS

Technical Data All Series

Input voltage range: 90V—255V
Input frequency range: 45 to 400Hz
Power factor ~1 (power factor corrected)
Rated Voltage 12V, 24V, 36V, 48V, 72V, 96V
Protection IP21 (when fitted horizontally)

General

Temperature controlled fan
Reverse polarity protection
Short Circuit protection
CE certified in accordance with applicable EN standards.

Climatic specifications:

Operating temp range:···· Full output power: -25°C to +40°C
(UPC 3200 -5° to +40°C)

Storage Temperature: ···· -55°C to +85°C

IP Protection IP21 (when fitted horizontally) IP20 otherwise

Connection

DC Output connection RK twin, 1.5m long, 6mm^2 up to 30A, 10mm^2 up to 50A, 16mm^2 up to 60A,
····· 25mm^2 up to 130A

Technical Data Series 800

Weight 1.5kg
Dimensions L250 x B110 x H75 mm
AC Input Connection 3 x 0.75mm^2, approx 1.5m long

Technical Data Series 1600

Weight 1.6kg
Dimensions L280 x B125 x H80 mm
AC Input Connection 3 x 1.5, approx 1.5m long

Technical Data Series 3200

Weight 12kg
Dimensions L420 x B260 x H90 mm
AC Input Connection 3 x 2.5, approx 1.5m long

Model range & part numbers

Series	Specification	Part number
12V		
UPC800	12V/20A	96558
UPC800	12V/30A	96568
UPC800	12V/40A	96559
UPC800	12V/50A	96550
UPC1600	12V/60A	96560
UPC3200	12V/130A	96561
UPC3200	12V/200A	96562
24V		
UPC800	24V/20A	96563
UPC800	24V/30A	96551
UPC1600	24V/40A	96564
UPC1600	24V/60A	96565
UPC3200	24V/100A	96566
UPC3200	24V/127A	96567
36V		
UPC800	36V/20A	96569
UPC1600	36V/40A	96570
UPC3200	36V/95A	96571
48V		
UPC800	48V/15A	96572
UPC1600	48V/30A	96573
UPC3200	48V/64A	96574
72V		
UPC800	72V/10A	96575
UPC1600	72V/20A	96576
UPC3200	72V/40A	96577
96V		
UPC800	96V/8A	96578
UPC1600	96V/15A	96579
UPC3200	96V/30A	96580
OPTIONS		
ALL TYPES	Remote Panel	96590
ALL TYPES	Remote sense 2.5M	96591
ALL TYPES	Remote Sense 20M	96593
ALL TYPES	Power Supply Conversion	96592

UPC OPTIONS

Remote Temperature and Voltage Sensor

The diagram below shows the method of connection of the sensor. The purpose of the sensor is to compensate for the voltage drop in the battery supply cables and to compensate for the battery temperature to ensure that the optimal voltage is applied to the terminals.

Two kits are available which differ in length, 2.5m and 20m and should be selected depending on the application. See diagram below for installation.

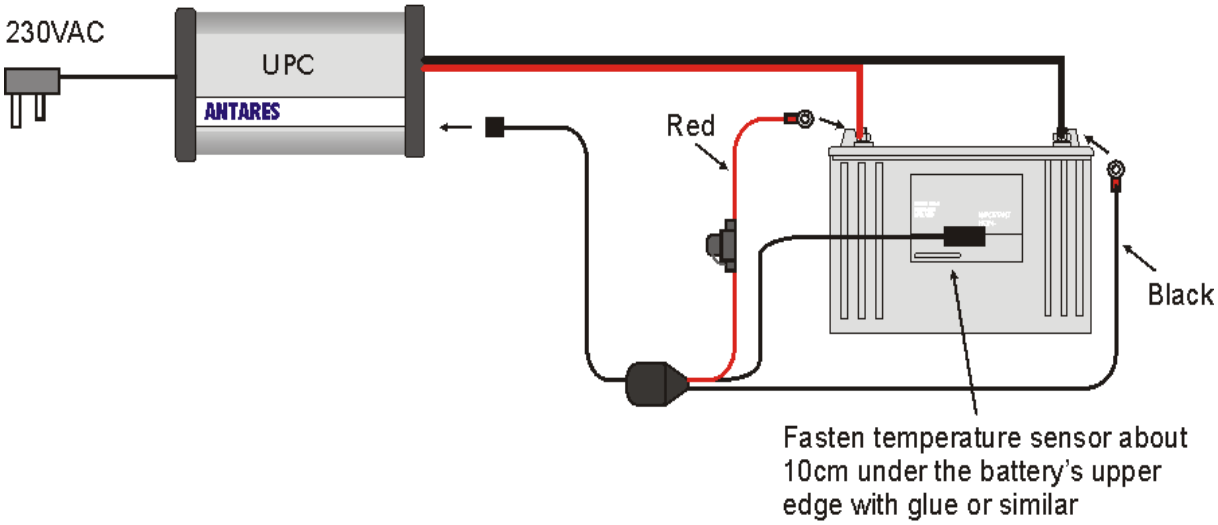
Remote LED Display

The display mimics the lamp on the charger allowing it to be located in an accessible position on the dashboard or control panel.

Conversion to a Power Supply

The UPC can be used as a constant voltage power supply where no battery is connected. This requires a change of program and is not configurable by the user. Please contact Antares for more information or conversion.

CONNECTION OF SENSE CABLE TO CHARGER



The sense cable enables the charger to adjust
the output voltage in accordance with battery terminal voltage
and battery temperature fluctuations

RECYCLING INFORMATION

When this product reaches the end of its useful life, it should be disposed of in accordance with the regulations in force in the place where the product is located.

This product is not encompassed within the scope of the UK Waste Electrical & Electronic Products (WEEE) regulations; Antares (Europe) Limited is not liable for the cost of collection & re-cycling of the materials contained within the equipment.

When installed on a vehicle, it may lie within the scope of the End-of-Life Vehicles Regulations, in which case the original vehicle producer may bear the responsibility for re-cycling.

In most cases, local regulations will prohibit disposal in land-fill sites. If so, the equipment should be handed to an appropriately licensed waste management organisation.

Antares (Europe) Limited is able to offer disposal & recycling facilities through its recycling scheme operator, B2B Compliance, who should be approached in the first instance. There will be a charge for collection & disposal.

B2B Compliance may be contacted by telephone: (+44) 1691 676124.

SUPPORT

Returns

Use of the Universal Power Charger should be trouble free. In the event that problems occur please call one of our support team on 01753 890888. Should it be necessary to send the unit to us for re-pair please photocopy the return form on the next page or download the form from our website www.antares.co.uk.

Applications engineering

Antares have an experienced team of engineers who are happy to discuss the integration of the UPC into the application.

Products to complete the installation

We offer a wide range of additional products for use with the UPC range:

CYCLIC DUTY GEL BATTERIES SUITABLE FOR REPEATED CHARGING

VEHICLE AC INLET SOCKETS WITH DRIVE-AWAY PROTECTION

DC ACCESSORIES INCLUDING FUSES, CABLES, CONNECTORS

VEHICLE DC INLET SOCKETS FOR EXTERNAL CHARGING

Further details of all of our products can be found on our website www.antares.co.uk or by calling us on 01753 890888.

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❑ PRODUCT RETURNS FORM

❑ ADVANCE REPLACEMENT RETURNS FORM

(TICK BOX ABOVE TO INDICATE TYPE OF RETURN)

Date

PLEASE USE THIS FORM TO ACCOMPANY RETURNS TO ANTARES (EUROPE) LIMITED. This will enable us to expedite your repair/return more efficiently. If you have your own return form, please attach it to this form. After receipt of your return we will either repair or replace the unit if within our warranty. If outside our warranty, we will provide a written quotation for repair/replacement. Please note that in the case of a 'no fault found' or the repair does not proceed, then a charge of £25 ex VAT and return carriage (if required) is payable. Goods arriving without suitable paperwork will take longer to process.

Company Name	Contact

Delivery Address (for return)

Part Number	Serial Number

Product Description

Vehicle Type	Registration/your reference

Contact Fax	Contact Tel

Reason for return

( ) Advance replacement returned for credit against invoice ..... RA .....
( ) Incorrect supply
( ) Please repair under warranty (Invoice date ...../...../.....)
( ) Please quote for repair
( ) Please repair – purchase order attached ( )
( ) Not required (note there may be a restocking charge)
( ) Unit for reconditioning (advance replacement RA# .....)

Description of observed fault and additional relevant information